

The opinion in support of the decision being entered today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* GERALD C. TUSTIN,  
JOSEPH R. ZOELLER  
and RICHARD D. COLBERG

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Appeal 2007-2208  
Application 10/650,510  
Technology Center 1700

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Decided: August 28, 2007

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Before EDWARD C. KIMLIN, PETER F. KRATZ, and JEFFREY T.  
SMITH, *Administrative Patent Judges*.

KRATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the Examiner's final rejection of claims 1-8 and 13-15. Claims 9-12 and 16-40, the only other claims that remain pending in this application, stand withdrawn from further consideration by the Examiner as drawn to non-elected invention(s). We have jurisdiction pursuant to 35 U.S.C. §§ 6 and 134.

Appellants' invention is directed to fluidizable catalyst particles having a specified range of average particle sizes and a process for preparing same. The particles comprise carbonized polysulfonated vinylaromatic polymer. Claim 1 is illustrative and reproduced below:

1. A fluidizable catalyst comprising carbonized polysulfonated vinylaromatic polymer particles in which the particles have an average particle diameter of about 1 to about 200 micrometers ( $\mu\text{m}$ ).

The Examiner relies on the following prior art references as evidence in rejecting the appealed claims:

Maroldo	US 4,839,331	Jun. 13, 1989
Zoeller ('673)	US 6,235,673 B1	May 22, 2001
Zoeller ('043)	US 6,452,043 B1	Sep. 17, 2002

Claims 1-5 and 13-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Maroldo. Claims 6-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Zoeller '043 in view of Maroldo. Claims 6-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Zoeller '673 in view of Maroldo.

We affirm the stated rejections for reasons stated in the Answer and as further explained below.

Under 35 U.S.C. § 103, the factual inquiry into obviousness requires a determination of: (1) the scope and content of the prior art; (2) the differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) secondary consideration. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18, 148 USPQ 459, 467(1966).

“[A]nalysis [of whether the subject matter of a claim would have been

obvious] need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1740-741, 82 USPQ2d 1385, 1396 (2007) quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336-337 (Fed. Cir. 2006); see also *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1361, 80 USPQ2d 1641, 1645 (Fed. Cir. 2006)(“The motivation need not be found in the references sought to be combined, but may be found in any number of sources, including common knowledge, the prior art as a whole, or the nature of the problem itself.”); *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969)(“Having established that this knowledge was in the art, the examiner could then properly rely, as put forth by the solicitor, on a conclusion of obviousness ‘from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference.’”).

With respect to all of the Examiner’s obviousness rejections, the thrust of Appellants’ arguments are directed to an alleged lack of teaching or suggestion of the particle size requirement of the respectively rejected claims in the applied references and to an allegation of unexpected results based on the claimed particle size limitation (Br., 4-9).

Hence, the principal issues before us are: (1) Have Appellants identified reversible error in the Examiner’s obviousness rejections based on an alleged failure of the Examiner to present a prima facie case of obviousness for the claimed subject matter because of a lack of

teaching/suggestion of the claimed particle size: and (2) Have Appellants refuted any alleged prima facie case of obviousness made out by the applied prior art with evidence presented in the Specification that allegedly establishes unexpected results for the claimed subject matter? We answer these questions in the negative and affirm the Examiner's obviousness rejections.

Considering the Examiner's first stated rejection, we note that Appellants argue the rejected claims together as a group. Thus, we select rejected claim 1 as the representative claim.

Appellants acknowledge that Maroldo discloses particles prepared by partial pyrolysis of polysulfonated vinylaromatic polymer resins (Br. 5, Maroldo, col. 1, ll. 5-7 and col. 3, ll. 8-13).

Maroldo discloses that the particles can be used as adsorbents or as a catalyst support (col. 6, ll. 10-24). Maroldo discloses that the particles can be made in the form of beads and that the beads or particles can be of a size formed via conventional suspension polymerization or the particles can be smaller or larger and can be ground and/or sieved to achieve desired sizes (col. 4, ll. 22-28 and 49-56). From this disclosure, the Examiner essentially takes the position that it would have been obvious to one of ordinary skill in the art to form particles of a suitable size for an adsorbent or catalyst support utility as taught by Maroldo, including the formation of particles of an average size within the scope of the representative claim 1 range (Answer 9).<sup>1</sup> We agree with the Examiner.

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<sup>1</sup> The Examiner also took the seemingly alternative position that Maroldo is silent respecting the particle size of their polysulfonated polymer particles

In this regard, Appellants counter with the contention that the disclosure of Maroldo is too ambiguous with regard to the formation or use of a specific size range of particles, as claimed, to be suggestive of the claimed subject matter. We disagree. Given the full disclosure of Maroldo, one of ordinary skill in the art would have been led to form the polysulfonated polymer particles of a size to be useful for the disclosed purposes of forming same. As such, the ordinarily skilled artisan would have determined and made the treated polymer beads in particle sizes that are suitable for using the particles as an adsorbent or catalyst support in typical contacting beds arranged for such purposes. For example, one of ordinary skill in the art would have generally made the particles of smaller size when the adsorbent or catalyst use was to be performed in a typical fluidized or entrained bed, as opposed to a fixed bed. This is so because one of ordinary skill in the art would have had some skill in carrying out routine experimentation and recognized the need for making particle sizes useful in such typical contacting beds. In so doing, we have no doubt that one of ordinary skill in the art would have been led to make the carbonized (pyrolyzed) polysulfonated vinylaromatic polymer particles of Maroldo in a size suitable for fluidization as one option and in so doing arrive at particle sizes corresponding to the representative claim 1 particle sizes.<sup>2</sup>

We recognize that Maroldo also presented Example 1 wherein a somewhat larger particle sized polymer bead was used for polysulfonation

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(Answer 5). However, we need not concern ourselves with this statement of the Examiner in light of our findings above.

<sup>2</sup> We note, for example, that Maroldo discloses that the polymer particles can be fluidized during the pyrolysis treatment thereof (col. 5, ll. 16-18).

and pyrolysis. However, the teachings of Maroldo are not limited to the Examples. Concerning this matter, it is well settled that a reference must be considered in its entirety, and it is well-established that the disclosure of a reference is not limited to preferred embodiments or specific working examples contained therein. *See In re Fracalossi*, 681 F.2d 792, 794 n.1, 215 USPQ 569, 570 n.1 (CCPA 1982); *In re Lamberti*, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976). In this regard, we are bound to consider the disclosure of each reference for what it fairly teaches one of ordinary skill in the art, including not only the specific teachings, but also the inferences which one of ordinary skill in the art would reasonably have been expected to draw therefrom. *See In re Boe*, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966); and *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

Accordingly, we determine that the Examiner has presented a prima facie case of obviousness with respect to representative claim 1 that is not persuasively rebutted by the arguments furnished in the Brief.

For each of the Examiner's separate rejections of claims 6-8, Appellants argue the rejected claims as a group. Thus, we select claim 6 as the representative claim. Appellants do not contend that either of the separately applied Zoeller patents would not be combinable with Maroldo for suggesting the formation of a catalyst of the type recited in representative claim 6 using the pyrolyzed sulfonated polymer beads of Maroldo as the catalyst support. In this regard, each of the applied Zoeller patents discloses the use of pyrolyzed sulfonated polymer beads as a catalyst support and both Zoeller patents refer to Maroldo (U.S. Patent No. 4, 839,331), including

incorporating that patent by reference as describing a catalyst support for use therein. *See, e.g.,* Zoeller '043, col. 3, ll. 53-65 and col. 6, ll. 2-5 and Zoeller '673, col. 4, ll. 48-64 and col. 5, ll. 22-30). Rather, Appellants make the same arguments concerning the particle size as made against the Examiner's rejection of representative claim 1. For the reasons discussed above, we are not persuaded by these particle size arguments.

Moreover, Appellants refer to Comparative Example 1 of their Specification and argue that the claimed catalyst particles possess unexpectedly improved fluidization properties in comparison with Amberesorb 572, a particle disclosed in the Zoeller patents, that was tested in this Comparative Example (Specification ¶ 0072). However, Specification comparative Example 1 discloses or reports nothing concerning unexpected results for the claimed particles. Rather, the Comparative Example 1 merely shows that Ambersorb 572 particles were loaded with glass frit in a small glass tube and fluidization was achieved at a gas hourly space velocity of  $7500 \text{ hr}^{-1}$ . The question as to whether unexpected advantages have been demonstrated is a factual question. *In re Johnson*, 747 F.2d 1456, 1460, 223 USPQ 1260, 1263 (Fed. Cir. 1984). Thus, it is incumbent upon Appellants to supply the factual basis to rebut the prima facie case of obviousness established by the examiner. *See, e.g., In re Klosak*, 455 F.2d 1077, 1080, 173 USPQ 14, 16 (CCPA 1972). Here, the Appellants cursory reference to Comparative Example 1 of the Specification is clearly inadequate to satisfy Appellants' burden to demonstrate unexpected results that are commensurate in scope with the claimed invention.

It follows that, on this record, we shall affirm the Examiner's obviousness rejections of the appealed claims.

### CONCLUSION

The decision of the Examiner to reject claims 1-5 and 13-15 under 35 U.S.C. § 103(a) as being unpatentable over Maroldo; to reject claims 6-8 rejected under 35 U.S.C. § 103(a) as being unpatentable over Zoeller '043 in view of Maroldo; and to reject claims 6-8 under 35 U.S.C. § 103(a) as being unpatentable over Zoeller '673 in view of Maroldo is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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